MCEN40002 Optimisation

Credit Points:	12.50
Level:	4 (Undergraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus. On campus only
Time Commitment:	Contact Hours: Thirty-two hours of lectures, tutorials and project work. Total Time Commitment: 120 hours
Prerequisites:	The prerequisites for this subject are **431-201 Engineering Analysis A (/view/2010/431-201)** and **431-202 Engineering Analysis B (/view/2010/431-202)** ; or **620-231 Vector Analysis (/view/2010/620-231)** , **620-232 Math Methods (/view/2010/620-232)** and **620-331 Applied PDE's. (/view/2010/620-331)**
Corequisites:	N/A
Recommended Background Knowledge:	N/A
Non Allowed Subjects:	N/A
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry. The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability
Coordinator:	Prof Saman Halgamuge
Contact:	Melbourne School of Engineering Office Building 173, Grattan Street The University of Melbourne VIC 3010 Australia General telephone enquiries + 61 3 8344 6703 + 61 3 8344 6507 Facsimiles + 61 3 9349 2182 + 61 3 8344 7707 Email **eng-info@unimelb.edu.au (eng-info@unimelb.edu.au)**
Subject Overview:	Optimisation is an essential component of engineering due to its need in engineering practice. Selected methods of modelling and optimisation covered in the subject include nature-inspired optimisation methods, methematical programming, dynamic programming and Markov processses.
Objectives:	Upon completion, students should be able to model and solve a range of decision-making problems in Mechanical, Biomedical and Mechatronic engineering by applying the techniques of mathematical programming, stochastic modelling and Optimisation.
Assessment:	One 3-hour end-of-semester examination (70%)One written project report of up to 6000 words with no more than 10 pages of supporting material (appendices, diagrams, tables etc) due towards the end of the semester (30%).

Prescribed Texts:	N/A
Recommended Texts:	N/A
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	On completion of the subject students should have the following skills: # Ability to apply knowledge of basic science and engineering fundamentals # In-depth technical competence in at least one engineering discipline # Ability to undertake problem identification, formulation and solution # Ability to utilise a systems approach to design and operational performance # Capacity for independent critical thought, rational inquiry and self-directed learning
Related Course(s):	Bachelor of Engineering (EngineeringManagement)Mechanical&Manufacturing Bachelor of Engineering (Mechanical &Manufacturing)& Bachelor of Science Bachelor of Engineering (Mechanical &Manufacturing)/Bachelor of Commerce Bachelor of Engineering (Mechanical and Manufacturing Engineering) Bachelor of Engineering (Mechatronics) and Bachelor of Computer Science